To: "Suplee, Mike" [msuplee@mt.gov]
Cc: "Urban, Eric" [EUrban@mt.gov]; N=Tina Laidlaw/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Tonya Fish/OU=R8/O=USEPA/C=US@EPA[]; N=Tonya Fish/OU=R8/O=USEPA/C=US@EPA[]
From: CN=Dave Moon/OU=R8/O=USEPA/C=US
Sent: Fri 6/15/2012 6:22:01 PM
Subject: Re: Endnote 2, DEQ 12 (nutrient criteria)
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http://deq.mt.gov/wqinfo/NutrientWorkGroup/default.mcpx

Mike -

Couple of things:

1) It may be really useful if the criteria specify an acceptable frequency of exceedance. A big advantage is that you can then identify low flows with a duration and frequency matching the criterion. e.g., EPA's 30-day average, 1 in 3 year ammonia criteria can be implemented using 30 day average, 1 in 3 year low flows. That way, the WQBEL is derived from and complies with the criterion.

2) If the criteria do not specify any acceptable frequency of exceedance, the WQS rule would be saying that no exceedances are authorized, which makes it difficult to assume any dilution in the mass balance for the WQBEL. Permits would need to be set to a level that ensures the ambient criterion will never be exceeded, given expected variations in effluent quality and ambient conditions. I don't think you want to go there!

3) For permits, many of them are going to be based on a WQS variance (interim effluent limit). However, it's also important to think ahead to when more permits include WQBELs calculated from base numeric criteria. I think you need a frequency of exceedance so that the permit writer can assume a low flow and do a mass balance. Now is the best time to solve this problem.

4) Not having an acceptable frequency of exceedance also means more impaired waters on the 303(d) list, because even 1 monthly average exceedance would be too much.

5) Colorado addressed this issue by expressing the stream/river nutrient criteria as annual median values that may be exceeded 1 year out of five. Those criteria will translate to annual median, 1 in 5 year low flows (for the mass balance). I.e., pretty generous ambient "low" flows! For assessment, they typically use a 5 year assessment period, and I believe they plan to calculate 5 annual medians, and it will be ok if 1 of them exceeds the magnitude of the criterion. I hope I have that right. Possibly they are doing something different. You might want to contact Blake Beyea to get the scoop. Of course, you don't have to use Colorado's method. I'm mentioning it because it's an example of how the magnitude, duration and frequency of the criterion can be consistent with permitting and listing methods.

6) I don't understand what you're doing with your assessment method. However, I think you want the following: a) base numeric criteria that protect uses, b) base numeric criteria that specify an acceptable magnitude, duration, and frequency of exceedance, and c) permitting and listing methods that are consistent with the magnitude, duration, and frequency of the base numeric criteria. Remember that the Fla IWR was litigated because it called for using average concentrations even if the criteria were expressed as instantaneous maxima. The State lost in court on that one. This issue is now a priority for EPA.

7) If you want, we could ask HQ to see if they are willing to help develop a reasonable range of options for you to consider and evaluate. One factor to consider is that algae may be most prevalent in late summer, but ambient flows may be lowest during winter. There are exceptions to this, however. Winter flows are not always the lowest, because of seasonal diversions. It might be useful to calculate low flows for MT gaging stations using several averaging period and frequency of exceedance combinations. It would help identify the practical difference between several approaches.

8) Another factor is that it is difficult to gather enough ambient data to support 30-averages for assessment. If you used a longer duration (90 days?), you'd have a better chance of having enough data to estimate the average concentration. Duration and frequency both affect the overall stringency of the criterion, so that gives you a couple of parameters to work with in coming up with a criterion and implementation methods.

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-----"Suplee, Mike" <msuplee@mt.gov> wrote: -----
To: Dave Moon/R8/USEPA/US@EPA
From: "Suplee, Mike" <msuplee@mt.gov>
Date: 06/15/2012 11:02AM
Cc: "Urban, Eric" <EUrban@mt.gov>, Tina Laidlaw/MO/R8/USEPA/US@EPA
Subject: Endnote 2, DEQ 12 (nutrient criteria)

Hi Dave;

This is a follow-up to the phone message I left. Tina suggested in her absence I work with you on this.

In draft DEQ-12, we have an endnote (No. 2) stating that the nutrient concentrations in table 12A-1 (the nutrient criteria concentrations, i.e. magnitudes) shall not be exceeded (as averages) based on a 30-day (monthly) period (i.e., duration). Permitting uses this to link to the Average Monthly Limit. It reads:

"(2) No wadeable stream or large river referenced in Table12A-1 shall have an average concentration that exceeds the values shown based upon a monthly (30-day) period."

Tina notes (correctly) that this does jive with our N and P assessment methodology SOP for ambient surface waters. As such, I am propose this endnote as an option and would like your thoughts:

"(2) For the purposes of deriving permit limits, no wadeable stream or large river in Table 12A-1 shall have an average concentration that exceeds the values shown based upon a monthly (30-day) period. For the purposes of assessing ambient surface water quality, concentrations in Table 12A-1 shall be used in conjunction with statistical

evaluation methods in the department guidance document "Assessment Methodology for Determining Wadeable Stream Impairment Due to Excess Nitrogen and Phosphorus Levels."

The Department's view is that the statistical evaluation methods in the guidance document (which includes both a binomial test of the nutrient dataset, and a T-test) are Monitoring and Assessment's interpretation of the average monthly level, a.ka. what Permitting will be using.

If you need to look at a draft DEQ12, here is the link:

http://deq.mt.gov/wqinfo/NutrientWorkGroup/default.mcpx

(It's the first item among the links near the bottom of the website.)

Your thoughts are appreciated,

Mike